

U.S.S.N. 09/858,387

7

PD-201006A

**REMARKS**

Applicants wish to thank the Examiner for considering the present application. In the Office Action dated July 26, 2006, Claims 1, 3-22 are pending in the application. Applicants respectfully request the Examiner for reconsideration of the rejection of Claims 1 and 3-22.

Claims 1, 5-6, 8, and 11-12 stand rejected under 35 U.S.C. §103(a) as being patentable over *Gross* (6,507,739) in view of *Ward* (6,167,286) in further view of *Denney* (5,995,062) and *Turcotte* (5,856,804).

Claim 1 includes a communication system that has an antenna that has a plurality of panels, each of the panels has a plurality of main array elements for simultaneously generating a plurality of dynamic communication beams. That is, each of the panels may simultaneously generate more than one beam. The beams may also be dynamic communication beams. The dynamic communication beams as described in the specification in paragraph 44 may track individual subscribers. This highlights the fact that the present invention does not provide a fixed cell pattern. Rather, each beam is associated with a user and therefore, as the user moves, the beam, and therefore the elements associated with the beam, are changed so that the user is tracked. Although not claimed in Claim 1, when interference occurs the communication resources associated with the beam may be changed. Claim 1 also recites that the gateway station generates a plurality of beam commands for each of the panels so that the communication beams at the panels may be formed.

The *Gross* reference teaches a system that includes aircraft radio terminals 220 that generate beams. However, no teaching or suggestion is provided for base stations that have an adaptive antenna with a plurality of panels, each panel having a plurality of reconfigurable main

U.S.S.N. 09/858,387

8

PD-201006A

array elements for generating a plurality of communication beams as recited in amended Claim 1.

The *Ward* reference in Col. 10, line 66 through Col. 11, line 27, teaches a "multi-element main array antenna." No teaching or suggestion is provided having a base station with an adaptive antenna with a plurality of panels, each panel having a plurality of reconfigurable main array elements. The Examiner agrees with the Applicants' position in the Office Action, which states that, "Ward does not specifically disclose a communication system wherein the adaptive antenna comprises a plurality of panels."

The *Denney* reference is disclosed for an adaptive antenna that has a plurality of panels. The *Denney* reference does illustrate a phased array antenna having a plurality of panels. The multiple panels are illustrated in Fig. 2. The *Denney* reference, however, does not provide simultaneous dynamic beams. The *Denney* reference appears to teach a switch 82 that is used to select a single beam from a single panel. Col. 6, lines 64-67, state that, "... multiple beams using multiple panels simultaneously by controlling the 8-way switches ..." may be performed. The reference further states that, "... it is not anticipated that the antenna would be used in this fashion." Col. 3, lines 63-67, recite that, "Only one panel requires calibration because the 8-way switch, radio frequency cables, and antenna elements are phase matched. This reduces the calibration time by 1/8 and reduces any required memory storage in a controller by 1/8." Thus, the *Denney* reference appears to teach one beam or multiple beams corresponding to a respective panel may be performed. The *Denney* reference does not teach providing simultaneous beams from the same panel. Also, the *Denney* reference does not teach dynamic beams that move with the user.

U.S.S.N. 09/858,387

9

PD-201006A

The *Turcotte* reference is cited for teaching beams that move with a user. Applicants admit that column 10, lines 6-26, describe beams that track a subscriber unit's movement through the footprint region. However, the *Turcotte* reference does not teach or suggest that the beams are generated from a base station that has an adaptive antenna with a plurality of panels. In fact, it appears that the Examiner is picking and choosing from the now-four references in the rejection to form a hindsight reconstruction of the invention. Applicants respectfully submit that there is no teaching or suggestion in any of the references for making such a broad combination. Therefore, Applicants respectfully request the Examiner to reconsider the rejection of Claim 1. Likewise, Applicants respectfully request the Examiner to reconsider the rejection of dependent claims 5, 6, 8, 11 and 12 for similar reasons.

Claims 20 and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Ward* and *Turcotte* in further view of *Keskitalo* (5,345,448). Applicants respectfully traverse.

Claim 20 is similar to Claim 1 in that each of the panels may generate more than one dynamic link from a panel.

The *Keskitalo* reference teaches a time division multiple access system. A time division multiple access system typically does not generate simultaneous beams. Each beam or resource is inserted in a different time slot. The present invention provides that more than one beam may be generated from more than one panel. The beams are also dynamic in that they move with the user. The *Keskitalo* reference is a hand over system for handing over the communication from one base transceiver station to another transceiver station as a mobile station moves. The *Keskitalo* reference does not teach a system that has base stations with a plurality of multiple

U.S.S.N. 09/858,387

10

PD-201006A

channels. Thus, the *Keskitalo* reference does not teach or suggest several of the elements and the present claims.

Claims 3-4 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Ward* and *Turcotte* in further view of *Denney* as applied to claims 1, 5-6, 8, and 11-12, and in further view of *Gutleber*. The *Gross*, *Ward* and *Turcotte* references each have drawbacks as recited above. Although adaptive multiple interference tracking and canceling is described with respect to the antenna of the *Gutleber* reference, no teaching or suggestion is provided in the reference for the element missing from Claim 1 as recited above. Also, there is no teaching or suggestion in the *Gutleber* reference for combining the antenna into a system having a gateway station that forms communication commands for each of a plurality of panels. Applicants therefore respectfully request the Examiner for reconsideration of Claims 3-4.

Claims 9-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Ward* and *Turcotte* in further view of *Denney* as applied to claims 1, 5-6, 8, and 11-12, and in further view of *Murray*. The *Murray* reference is directed to a modular super tile array antenna. Although the system is modular, no teaching or suggestion is provided in the *Murray* reference for the elements missing in the *Gross*, *Ward* and *Denney* references as described above. Furthermore, no teaching or suggestion is provided for forming a combination with *Gross*, *Ward* and *Turcotte*. Applicants therefore respectfully request the Examiner to reconsider the rejection of Claims 9 and 10.

Claim 13 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Ward* and *Turcotte* in further view of *Denney* as applied to claims 1, 5-6, 8, and 11-12, and in further view of *Kasperkovitz*. Applicants respectfully traverse. The *Kasperkovitz* reference is directed to a phase lock loop for a directly mixing synchronous AM receiver. Claim

U.S.S.N. 09/858,387

11

PD-201006A

13 depends from Claim 1. Claim 13 recites that a limiter is coupled to a feedback path. Applicants agree that a limiter LA is shown in Fig. 1. However, the limiter is not in a feedback path. A feedback path feeds the output of a control system back to an input to the control system. No teaching or suggestion is provided for a limiter in a feedback path. Applicants therefore respectfully request the Examiner to reconsider the rejection of Claim 13.

Claims 14-17 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Ward* and *Turcotte* in further view of *Denney* as applied to Claims 1, 5-6, 8, and 11-12, and in further view of *Agee*.

Claims 14-17 and 19 are dependent upon claim 1. Claims 14-17 and 19 are believed to be allowable for the same reasons set forth with respect to Claim 1. That is, the *Agee* reference does not teach or suggest the elements missing from the *Gross*, *Denney*, *Ward* and *Turcotte* references. With respect to Claim 21, Applicants respectfully request the Examiner to reconsider this rejection in view of the comments to Claims 20 and 3 above.

Claim 18 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Ward* and *Turcotte* in further view of *Denney* as applied to Claims 1, 5-6, 8, and 11-12, and in further view of *Park* in further view of *Janc* and in further view of *Sayegh*. Applicants respectfully traverse.

Although the three additional references provide some of the teachings, each of these references does not provide the elements missing from the *Gross*, *Ward*, *Turcotte* and *Denney* references nor the motivation to form the combination. That is, no teaching or suggestion is provided in any of the three references for forming an adaptive antenna with a plurality of panels, each having a plurality of reconfigurable main array elements for generating a plurality

U.S.S.N. 09/858,387

12

PD-201006A

of communication beams that are formed by control signals from a gateway station that form beam commands for each of the plurality of panels.

In light of the amendments and remarks above, Applicants submit that all rejections are now overcome. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments which would place the application in better condition for allowance, the Examiner is respectfully requested to call the undersigned attorney.

Should any fees be associated with this submission, please charge Deposit Account 50-0383.

Respectfully submitted,

Dated: August 16, 2006

By: 

Georgann S. Grunebach, Reg. No. 33,179  
Attorney for Applicants

The DIRECTV Group, Inc.  
CA/LA1/A109  
2230 East Imperial Highway  
P.O. Box 956  
El Segundo, CA 90245  
Telephone: (310) 964-4615